

What is claimed is:

1. A method for controlling the speed of a torque-controlled internal combustion engine (1) in which the generation of the drive torque to a drive shaft (15) is regulated by actuators (10, 13) which are controlled from a control value (C_{ist}) of the instantaneous torque and by a control value (C_{pre}) of the predicted torque; the method providing for the calculation of the objective value (n_{obb}) of the speed and the generation of the control value (C_{ist}) of the instantaneous torque by means of a first feedback control loop (20) which uses as input the objective value (n_{obb}) of the speed; the method being characterized in that an objective value (RC_{obb}) of the torque reserve is calculated, an objective value (Cp_{obb}) of the potential torque is calculated on the basis of the objective value (RC_{obb}) of the torque reserve, and the control value (C_{pre}) of the predicted torque is generated by means of a second feedback control loop (21) which uses the objective value (Cp_{obb}) of the potential torque as input.
2. The method of claim 1, in which the objective value (Cp_{obb}) of the potential torque is calculated by adding the control value (C_{ist}) of the instantaneous torque generated by the first control loop (20) to the objective value (RC_{obb}) of the torque reserve.
3. The method of claim 1, in which the first feedback loop (20) calculates an error (En) of the speed by subtracting an estimated value (n_{sti}) of the current speed from the objective value (n_{obb}) of the speed and calculates the control value (C_{ist}) of the instantaneous torque from the error (En) of the speed.
4. The method of claim 1, in which the second control loop (21) calculates an error (ECp) of the potential torque by subtracting an estimated value (Cp_{sti}) of the current potential torque from the objective value (Cp_{obb}) of the potential torque and calculates the control value (C_{pre}) of the predicted torque from the error (ECp) of the potential torque.
5. The method of claim 1, in which the first control loop (20) works on the basis of the evolution of the angular position of the drive shaft (15), i.e. the variation of

the magnitudes involved by the first control loop (20) is expressed as a function of the angular position of the drive shaft (15).

6. The method of claim 1, in which the second control loop (21) works on the basis of the evolution of time, i.e. the variation of the magnitudes involved by the second control loop (21) is expressed as a function of time.
7. The method of claim 1, in which the objective value (RC_{obb}) of the torque reserve is kept constant.
8. The method of claim 1, in which the objective value (RC_{obb}) of the torque reserve is varied as a function of the occurrence of torque disturbances on the drive shaft (15).
9. The method of claim 8, in which the objective value (RC_{obb}) of the torque reserve is reduced in the event of torque disturbances on the drive shaft (15).
10. The method of claim 9, in which the objective value (RC_{obb}) of the torque reserve is reduced in a manner inversely proportional to the intensity of the torque disturbances acting on the drive shaft (15).
11. The method of claim 8, in which a controller (25) of the first feedback control loop (20) is able to estimate the torque disturbances acting on the drive shaft (15).
12. The method of claim 1, in which the objective value (n_{obb}) of the speed and the objective value (RC_{obb}) of the torque reserve are calculated as a function of the point of operation of the engine (1) and as a function of the external requests reaching the engine (1).
13. The method of claim 1, in which the gains of controllers (25, 26) of the first feedback control loop (20) and the second feedback control loop (21) are calculated on the basis of the point of operation of the engine (1).
14. The method of claim 13, in which the gains of controllers (25, 26) of the first feedback control loop (20) and the second feedback control loop (21) are calculated on the basis of the point of operation of the engine (1) and the gear engaged in a gear change associated with the engine (1).
15. The method of claim 1, in which the first control loop (20) controlling the generation of the instantaneous torque is adapted directly to govern the value (n) of the speed of the engine (1) and the second control loop (21) controlling the

generation of the predicted torque is adapted to ensure that the first control loop (20) has sufficient margins to be able to react to the torque disturbances which may occur on the drive shaft (15).

16. The method of claim 1, in which the objective value (n_{obb}) of the speed and the objective value (RC_{obb}) of the torque reserve are also calculated as a function of the thermal state of the engine (1).